

Appl. Serial No.: 10/816,084  
Amendment dated December 28, 2004  
Reply to Office action of September 28, 2004

### REMARKS

Claims 1-10, 12, 13, 16-25, 27, 28 and 31-34 remain in the application. Claim 1, 16 and 20 have been amended hereby. The present application as originally filed supports these amendments. No new matter has been added.

### Office's Response to Arguments Submitted by Applicant in Preliminary

#### Amendment

In the present Office Action, the Patent Office states that the applicant's arguments filed April 1, 2004 have been considered but are not persuasive. In the opinion of the Patent Office the limitation "wherein said calculation is made without reference to a measured flow through the inlet" as recited in independent claims 1 and 16, does not necessarily imply that the inlet does not include a flow meter.

In response, claims 1 and 16 have been amended to specifically recite that "the inlet is free of any flow meters for providing a measurement of flow through the inlet". As discussed next, the present application *as originally filed* discloses and supports this limitation.

### Claim Rejection Under 35 U.S.C. 112

Claims 1-10, 12, 13, 16-25, 27, 28 and 31-34 have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. In particular, the patent office submits that the limitation of "wherein said calculation is made without reference to a measured flow through the inlet" as recited in independent claims 1 and 16, was not described in the application as filed.

Applicant respectfully traverses this rejection. Applicant respectfully submits that the limitation of "wherein said calculation is made without reference to a measured flow through the

Appl. Serial No.: 10/816,084  
Amendment dated December 28, 2004  
Reply to Office action of September 28, 2004

inlet" as recited in independent claims 1 and 16, was described in the application as originally filed.

This limitation is shown in the drawings as originally filed. For example, in FIG. 1 of the application as filed, the inlet 12 of the mass flow ratio system 10 is shown to be unimpeded and without measurement devices. In addition, in FIG. 2 of the application as filed, there is nowhere shown a step for measuring flow through the inlet. *In re Wolfensperger*, 133 USPQ 537, 542 (CCPA 1962) states that "matter disclosed in the drawings alone, and not described in the specification as filed, has been held sufficient to support valid claims." In addition, the Federal Circuit Court of Appeals has held that the drawings alone of a design application were sufficient to meet the "written description" requirement in *Var-Cath, Inc. v. Mahurkav*, 19 USPQ2d 1111 (Fed. Cir. 1991). Thus, simply relying on the Figures of the present application as filed provides support for the limitation "wherein said calculation is made without reference to a measured flow through the inlet" as recited in independent claims 1 and 16.

Nevertheless, the specification as filed also provides support for the limitation. For example, in paragraph 10 of the specification as filed, it is stated that "The system and method of the present disclosure provide the benefit of operating independently of the gas or gases controlled. In addition, the system and method do not disturb the performance of any upstream mass flow controllers."

In paragraph 37 of the specification, it is suggested that "Embodiments of a system and a method for dividing flow according to the present invention can further include a pressure sensor for the inlet 12 . . . of the system 10. The inlet pressure . . . measurement provided by the pressure sensor(s) is used by the controller 24 to not only control the ratio " $\alpha$ " of the flows, but also control the inlet pressure and/or the outlet pressures." Thus, the specification suggests adding a pressure sensor to the inlet 12. In contrast, there is not suggestion in the specification or

Appl. Serial No.: 10/816,084  
Amendment dated December 28, 2004  
Reply to Office action of September 28, 2004

drawings of adding a mass flow meter to the inlet 12, or measuring flow through the inlet.

Moreover, claims 1 and 16 have been amended to specifically recite that "the inlet is free of any flow meters for providing a measurement of flow through the inlet". This limitation is clearly shown in the disclosure as originally filed.

Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-10, 12, 13, 16-25, 27, 28 and 31-34 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

#### **Claim Rejections Under 35 U.S.C. 102**

Claims 1-10, 12, 13, 16-25, 27 and 28 have been rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0038669 to Yamagishi et al. The Yamagishi et al. publication published on April 4, 2002, was filed on September 28, 2001, and claims priority to Japanese patent application 2000-304840, filed October 4, 2000.

Applicant respectfully traverses this rejection and requests reconsideration and withdrawal of the rejection of claims 1-10, 12, 13, 16-25, 27 and 28.

#### **Claims 1-10, 12 and 13**

Independent claim 1, from which claims 2-10, 12 and 13 depend, recites a system for dividing a single mass flow into two or more secondary flows of desired ratios, including at least an inlet adapted to receive the single mass flow and at least two flow lines connected to the inlet. Claim 1 has been amended to specifically recite that "the inlet is free of any flow meters for providing a measurement of flow through the inlet". Each flow line, in contrast, includes a flow meter measuring flow through the flow line, and a valve controlling flow through the flow line. A controller is connected to the flow meters and the valves, and is programmed to calculate an

Appl. Serial No.: 10/816,084  
Amendment dated December 28, 2004  
Reply to Office action of September 28, 2004

actual ratio of flow through the flow lines based upon the measured flows, and calculate a desired flow through at least one of the flow lines if the actual ratio is unequal to a desired ratio. The actual ratio of flow through the flow lines is calculated without reference to a measured flow through the inlet. In other words, the system claimed does not include or require a mass flow meter (MFM) in the inlet.

Applicant respectfully submits that Yamagishi et al. does not disclose or suggest a system as claimed in independent claim 1. Instead Yamagishi et al. shows a flow divider means having a mass flow meter (MFM) 24 connected with an input port 23. The MFM 24 provides a signal to a signal processor 25, which uses the flow through input port 23 to regulate the operation of downstream mass flow controllers (MFC) 26, 27.

Applicant, therefore, respectfully submits that independent claim 1 of the present application is neither anticipated by, nor rendered obvious in view of Yamagishi et al. for at least these reasons. Claims 2-10, 12 and 13, which depend from independent claim 1, are also not anticipated by, nor rendered obvious in view of Yamagishi et al.

Claims 16-25, 27, 28 and 31-34

Independent claim 16, from which claims 17-25, 27 and 28 depend, recites a method for dividing a single mass flow into two or more secondary mass flows of desired ratios. The method includes receiving a single mass flow into an inlet and dividing the single mass flow into at least two flow lines connected to the inlet, measuring mass flow through each of the flow lines, and calculating an actual ratio of mass flow through the flow lines based upon the measured flows. Claim 16 has been amended to specifically recite that "the inlet is free of any flow meters for providing a measurement of flow through the inlet". Claim 16 also recites that the actual ratio of mass flow through the flow lines is made without reference to a measured flow through the inlet.

Appl. Serial No.: 10/816,084  
Amendment dated December 28, 2004  
Reply to Office action of September 28, 2004

As discussed above with respect to independent claim 1, Yamagishi et al. does not disclose or suggest a flow divider wherein the actual ratio of flow through two flow lines is calculated without reference to a measured flow through an inlet connected to the two flow lines (e.g., using a mass flow meter (MFM) on the inlet). Applicant, therefore, respectfully submits that independent claim 16 is neither anticipated by, nor rendered obvious in view of Yamagishi et al. for at least these reasons.

Applicant, therefore, respectfully submits that independent claim 16 of the present application is neither anticipated by, nor rendered obvious in view of Yamagishi et al. for at least these reasons. Dependent claims 17-25, 27 and 28 are also not anticipated by, nor rendered obvious in view of Yamagishi et al.

Since claims 31-34 depend from independent claim 16, they are also allowable over Yamagishi et al. Moreover, since U.S. Patent No. 6,389,364 to Vyers also does not disclose or suggest a flow divider wherein the actual ratio of flow through two flow lines is calculated without reference to a measured flow through an inlet connected to the two flow lines, claims 31-34 are allowable over Vyers, whether Vyers is considered alone or in combination with Yamagishi et al.

Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-10, 12, 13, 16-25, 27, 28 and 31-34.

#### **Double Patenting Rejection**

Claims 1, 2, 12, 13, 16, 27 and 28 have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over U.S. Patent No. 6,766,260 ('260 patent). The present application is a divisional of the '260 patent, both of which are owned by the assignee of the present application: MKS Instruments, Inc.

Appl. Serial No.: 10/816,084  
Amendment dated December 28, 2004  
Reply to Office action of September 28, 2004

In response, a terminal disclaimer is being filed herewith. Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1, 2, 12, 13, 16, 27 and 28.

### Claim Objection

Claim 20 has been objected to as depending from a claim that follows it. In response claim 20 has been amended to depend from claim 16. Applicant respectfully requests reconsideration and withdrawal of the objection of claim 20.

### Conclusion

In view of the amendments and remarks submitted herein, applicant believes that all claims pending in the application are in condition for allowance and respectfully requests such allowance. If a telephone conference will expedite prosecution of the application the Examiner is invited to telephone the undersigned. If additional fees are required, or otherwise necessary to cover any deficiency in fees already paid, authorization is hereby given to charge our deposit account no. 50-1133.

Respectfully submitted,

McDermott Will & Emery LLP  
Customer Number: 23630



Date: December 28, 2004

Toby H. Kusmer, P.C., Reg. No. 26,418  
Jeffrey J. Miller, Reg. No. 39,773  
Attorneys for Applicants  
28 State Street  
Boston, MA 02109-1775  
Telephone: (617) 535-4000  
Facsimile: (617) 535-3800